

U.S. IOOS® Office
FY 2020 Annual Guidance Memorandum
7/12/2019

Strategic Direction:

The U.S. Integrated Ocean Observing System (IOOS) Enterprise Strategic Plan (2018-2022) affirms IOOS as a national program with a Federal and regional structure. IOOS is a collective effort among the U.S. IOOS Office, the Interagency Ocean Observation Committee (IOOC) and its agency programs, the IOOS Regional Associations (RAs), the IOOS Advisory Committee, and the IOOS Association.

Purpose:

This Annual Guidance Memorandum (AGM) provides planning guidance for the execution of the IOOS Office’s budget and personnel resources within the National Ocean Service (NOS) of the National Oceanic and Atmospheric Administration (NOAA). It conveys IOOS Office strategic direction for all employees and partners engaged in executing the IOOS mission.

The identified priorities consider our major mission functions, fiscal support, external drivers, identified risks, and corporate opportunities. These priorities will guide the execution of the FY2020 Annual Operating Plan (AOP), and steer the individual efforts of the IOOS Office and the IOOS Regional Associations toward accomplishing our strategic goals and objectives.

FY2020 Focus

In FY2020, the U.S. IOOS Office and the IOOS Enterprise will continue to support and enhance the delivery of information to support decision makers in protecting and enhancing lives and livelihoods to benefit people who have a stake in the health and the economy of our coasts, oceans, and Great Lakes. We will also continue to work with our Federal and nonfederal partners to deliver on the promise of IOOS envisioned by its founders two decades ago.

At the global level, IOOS will continue providing local, regional, and national lessons learned and advice to global ocean observing organizations. The IOOS Director serves as the U.S. Representative to the GOOS Regional Alliances. We will support the ocean observing community’s prioritization of essential ocean variables, guided by the Global Ocean Observing System (GOOS) Framework for Ocean Observations. Consistent with our priorities for IOOS, we will engage with the GOOS and use the OceanObs’19 conference (September 2019) to begin developing a NOAA vision for ocean observing in the next decade. This vision will support the Group on Earth Observations (GEO), the White House Office of Science and Technology Policy “Science and Technology for America’s Oceans: A Decadal Vision,” and the United Nations Decade of Ocean Science for Sustainable Development. We will work with the international Ocean Biogeographic Information System and GEO Biodiversity Observation Network to improve networking and integration of biological observing into the IOOS Enterprise.

Guiding Principles:

- Stakeholder-driven, science-based, and policy neutral
- Nimble and responsive services support diverse and evolving priorities and end-user needs
- Leveraged resources and innovation produce efficient, sustainable observing systems
- Integrated, high-quality and reliable data
- Easy and open exchange of information
- Networks of people, technology, and information
- Productive public-private partnerships

At the national level, well-planned and timely communications will be critical to maintaining a cohesive work effort. We will continue to work with and expand our Federal partnerships through the IOOC to ensure that users have the information they need to make decisions. We will participate in interagency networks such as the Marine Biodiversity Observation Network (MBON), the Animal Telemetry Network (ATN), and the IOOC task teams including the Underwater Glider User Group and the Metrics for Ocean Observing task teams.

Within NOAA, we will support implementation of the Weather Act by coordinating processes to incorporate ocean data into the National Weather Service (NWS) operations and forecasting. We will support the NOAA Water Initiative (NWI), with particular focus on coastal and ocean model coupling with the National Water Model, incorporating the principles of community-based modeling, the IOOC modeling strategy, and cloud computing strategies, and the NOAA Earth Prediction Innovation Center strategy. We will continue our strong partnership programs across all the NOAA line offices and support the growth of the Blue Economy. We will participate in NOAA's unmanned systems planning in order to leverage regional capabilities in support of Commercial Engagement through Ocean Technology Act of 2018 (CENOTE) legislation.

Within NOS, we will retain our focus on working with the Office for Coastal Management, Regional Ocean Partnerships, and IOOS Regional Associations to deliver ocean data to meet management needs in each region. We will continue to work closely with the Navigation, Observations, and Positioning offices of NOS – Office of Coast Survey, Center for Operational Oceanographic Products and Services, and the National Geodetic Survey – to jointly plan work and execute budgetary decisions. We will engage with all NOS offices to accomplish NOS priorities including but not limited to harmful algal bloom observing, product delivery, sea level rise and coastal risk reduction.

Program and governance priorities central to IOOS are:

- 1. Sustain long-term, high-quality observations of ocean, coastal, and Great Lakes environments to address local, regional, and national needs. (Strategic Plan Goal 1)**
 - a) Maintain critical observations infrastructure and address aging observing assets and infrastructure.
 - b) Enhance observations by filling gaps in the Surface Current Observing network and deploying gliders.
 - c) Develop an integrated approach to manage observational assets, including radars, gliders, buoys, and shore stations.
 - d) Support regional efforts to identify and report harmful algal blooms.
 - e) Support regional efforts to provide information to decision makers in support of forecasting, tracking, and managing risk during hurricane season.
 - f) Coordinate glider efforts to deliver coastal and ocean data for multiple missions, including improved understanding and forecasting of tropical cyclone intensity, monitoring HABs and coastal dynamics.
 - g) Continue to integrate biological observations into IOOS by building on the MBON, ATN and fisheries work.

- h) Transition and integrate new technology into operations including Ocean Technology Transition (OTT) projects and evaluations and workshops conducted by the Alliance for Coastal Technologies (ACT).

2. Deliver standardized, reliable, and accessible data. (Strategic Plan Goal 2)

- a) Improve real time data flow into National Centers for Environmental Prediction “data tanks” and scope a pan-regional data portal, with a goal of strengthening delivery of consistent observations to operational modelers.
- b) Further develop a unified approach to ingesting, standardizing, and publishing biological data of all types and fully integrate these into the DMAC planning and system architecture.

3. Support model predictions that address a wide range of user requirements. (Strategic Plan Goal 3)

- a) Co-lead development of a new NOS coastal modeling strategy with NOS offices and IOOS RAs in order to manage cross-line-office requirements and enable transition of models from research to operations.
- b) Advance Coastal and Ocean Modeling Testbed (COMT) projects, using community approaches, to support coupling of ocean and coastal models with the National Water Model and coupling of ocean and atmospheric models.
- c) Develop a cloud computing framework to enable effective operational ocean model development, model improvements, and improved data ingest and dissemination.

4. Provide integrated, user-driven products and tools. (Strategic Plan Goal 4)

- a) Determine how we measure and track customer needs across the Enterprise.
- b) Scope development of an active directory of IOOS decision-support, visualization products, and tools aligned to societal benefits.
- c) Build a repeatable process for assessing user satisfaction and economic benefit with IOOS data and information products and services.
- d) Leverage Enterprise resources to establish training and capacity building services across the network.

5. Organizational Excellence (Strategic Plan Goal 5)

- a) Work with the new members of the U.S. IOOS Federal Advisory Committee as they formulate their work plan to guide NOAA and the IOOC in their implementation of U.S. IOOS.
- b) Develop streamlined internal business practices for transparent and efficient budget execution.
- c) Complete the transition to the “U.S. IOOS Office” within the NOS organizational structure.
- d) Continue stakeholder engagement across the Enterprise to tie user needs to IOOS development.
- e) Enhance communications and team building within the IOOS Office and with the IOOS

Enterprise.

- f) Recruit and retain talent to fill IOOS workforce positions.
- g) Maintain commitment to diversity and inclusion.

APPENDIX A

Annotated Summary of the U.S. IOOS Enterprise Strategic Plan (2018-2022)

This appendix summarizes the goals and objectives of the U.S. IOOS Strategic Plan and adds statements as sub-bullets, clarifying our approach to achieving them. The goals, objectives and approaches are multi-year focused.

GOAL 1: Sustain long-term, high-quality observations of ocean, coastal, and Great Lakes environments to address local, regional, and national needs.

Ocean and coastal observations are difficult to sustain, operate, and maintain over long timeframes. The public often directs its support to emerging marine initiatives and technologies. To sustain the Enterprise, IOOS must balance the maintenance and operation of the mature observing system while expanding the system to address evolving societal issues.

- Leverage investment to improve system efficiencies, identify synergies, and provide common platforms to execute various missions.
 - Build communities of practice around components of the observing system to provide ongoing recommendations and guidelines for measuring essential ocean variables.
- Sustain and operate a national network of regional observing systems comprised of multidisciplinary observations from a variety of systems technologies.
 - Fund regional associations to maintain regional observing system networks.
- Fill critical gaps in national observing networks to address high-priority national and regional needs and improve coverage of regional coastal observing systems.
 - Coordinate with regions to identify and prioritize critical gap filling including surface current mapping, gliders, and streamlined access to observational information.
- Incorporate innovative technologies to address existing and emerging needs and transition proven technologies to operational use or other applications.
 - Continue the OTT program and utilize ACT to develop novel sensor technologies and transition them to operational use.

GOAL 2: Deliver standardized, reliable, and accessible data.

Ocean, coastal, and Great Lakes data come from a variety of systems, in many formats, and is available through a number of web-based sites. IOOS strives to simplify and streamline data access and discovery by providing data sources at regional and national scales.

- Promote standardization, automation, discovery, and access of data.
 - Develop community best practice guides for essential ocean variables (e.g. Quality Assurance / Quality Control of Real Time Ocean Data guides).

- Strengthen data stewardship to improve data quality, access, attribution, exchange, delivery, and storage across federal agencies and regional partners.
 - Sponsor community workshops to promote new data stewardship services and train data practitioners.
- Provide data infrastructure at the regional level through trusted, certified regional data centers to increase the availability, interoperability, and use of high quality data.
 - Set criteria for regional certification and conduct regular reviews and audits to ensure compliance with government data standards.
 - Socialize the opportunities for regional data integration with NOAA line offices and IOOC agencies now available with a certified network of regional data portals
- Support ongoing maintenance and operation of data management systems to sustain long-term data stewardship.
 - Implement the DMAC core capacity requirements with IOOS RAs and interagency partners through webinars and annual DMAC meetings.
- Create, maintain, and expand the capacity of functional data assembly centers as go-to data sources through collaboration with IOOS, the National Data Buoy Center, the National Centers for Environmental Information and other partners.
 - Support functional data assembly centers for observing system networks, including gliders, high frequency radars, and animal telemetry networks.

GOAL 3: Support model predictions that address a wide range of user requirements.

Data from observations alone do not go far enough to address stakeholder needs for actionable information. Numerical modeling bridges the divide between data and information by extracting relevant information for end-users, informing modelers on tool accuracy, and allowing resource managers to design optimal observing systems. IOOS supports a dynamic modeling community devoted to innovating models that link coastal to global phenomena.

- Continually develop and sustain research and community models and model-based products that provide information needed by regional stakeholders.
- Transition select IOOS partner models from research to operations through the Coastal and Ocean Modeling Testbed (COMT) and/or regional associations as demonstration environments and proving grounds.
- Assess model skill and advance data assimilation through data delivery, technical advancement, and regionally led research to improve model accuracy.
- Advance modeling approaches to inform decisions on the design and implementation of optimal observing systems and maximize the use of regional observations.

GOAL 4: Provide integrated, user-driven products and tools.

The translation of observations into meaningful information products requires the integration of variable and complex data with models and a focus on stakeholder requirements. Users with regionally or topically specific needs often require focused, integrated, user-friendly decision support tools.

- Develop regionally relevant, user-driven analysis, decision-support, and visualization products and tools to address historic and emerging stakeholder requirements.
 - Support regional efforts to develop tailored data and information products utilizing IOOS Enterprise data.
- Generate and disseminate pan-regional products and tools to respond to environmental issues and seasonal hazards that span larger geographic areas.
 - Enable more standardized interdisciplinary and integrated products across regions.
- Create national products that incorporate cross-disciplinary data to provide a single, user-friendly access point to integrated information.
 - Develop tools that integrate data across networks and regions, including the Environmental Sensor Map, Environmental Data Viewer, the ATN Data Assembly Center, and MBON portal.
- Promote IOOS products on international and cross-institutional scales to optimize usage and relevance.
 - Engage in capacity building efforts with other agencies and organizations to promote IOOS products and services.

GOAL 5: Increase the reach and effectiveness of IOOS through partnerships, stakeholder engagement, and investment in Enterprise excellence.

IOOS partners come from federal and state agencies, nongovernmental organizations, and private industries around the country. Coordination and communication is essential for success. IOOS relies on balanced and robust partnerships built on trust and a shared mission. We work closely with the national network of Regional Associations to develop and nurture these relationships both locally and nationally. As stakeholder needs evolve over time, IOOS partnerships must remain nimble and transparent through effective communications and engagement to remain a cohesive, responsive Enterprise.

- Engage stakeholders to gather customer feedback and refine requirements for IOOS products and services.
 - Sponsor and attend workshops with ocean data practitioners and conduct site visits to understand ocean data and information needs.

- Increase the operational effectiveness of federal, state, and other partner investments to support regional, national, and global activities and innovative research.
 - Represent IOOS on agency, interagency, and international committees leveraging IOOS expertise and investments to build capacity including the National Oceanographic Partnership Program.
- Expand and strengthen the network of partnerships with new and existing stakeholders, especially industry and federal partners, to innovate ocean observations and information products.
 - Continue co-development of DMAC tools with private, nonprofit, and academic partners.
 - Engage with other agencies on partnership opportunities and remain open to requests for assistance.
- Empower communities of practice to expand observing capabilities and expand expertise.
 - Convene experts to document best practices and lessons learned.
- Foster the next generation of science, technology, engineering, and math specialists through targeted education, training, and research opportunities.
 - Support internships and fellowships in the IOOS Office and the regions.
 - Support request for career mentoring.
 - Support job fairs.
- Elevate outreach and engage new audiences to convey the societal and economic value of a sustained ocean, coastal, and Great Lakes observing system.
 - Support outreach and education efforts in NOAA and the regions.